

Curriculum Vita: Yuming XIAO

Bldg.434E Rm. 004, HPCAT (630-252-4058)
X-ray Science Division
9700 South Cass Ave., Argonne National Laboratory
Argonne, IL 60439

Education

- Ph.D.*, Sep 2007, Department of Applied Science, University of California, Davis,
Dissertation Title: Nuclear Resonance Vibrational Spectroscopy on Iron-Sulfur
Proteins and Nitrogenase
Advisor: Prof. Stephen P. Cramer
- M.S.* Applied Science, University of California, Davis, Sep 2003
- B.S.* Physics, Nanjing University, Jul 1998

Professional Experience

Beamline Scientist: High Pressure Collaboration Access Team (HPCAT), X-ray Science Division, Argonne National Lab (Jul 2018- present); High Pressure Collaboration Access Team (HPCAT), Geophysical Laboratory, Carnegie Institution of Washington (Jul 2008-Jul 2018)

- Support user program at 16ID-D of HPCAT including communications prior user's arrival, suggestions to users with optimal experimental approaches, on-site support, possible data evaluation and documentation preparation after they leave
- Develop 7-element X-ray emission spectrometer for high efficient high pressure R/XES experiment
- Develop polycapillary based X-ray Raman scattering setup for high pressure XRS experiment beyond Megabar
- Study properties of materials (mainly interested in strong correlated materials such as transition metal oxides, metal hydrides and *f*-electron systems) under high pressure using synchrotron spectroscopic techniques

Postdoctoral Associate: HPCAT (Sep 2007- Jun 2008)

- Conduct and support 16 ID-D user groups to study properties of materials under high pressure using synchrotron spectroscopic techniques

Research Assistant: Department of Applied Science, University of California, Davis (Jul 2003- Sep 2007)

- Using synchrotron spectroscopic techniques (EXAFS, Nuclear Resonance Vibrational Spectroscopy, Synchrotron Mössbauer Spectroscopy, X-ray Emission Spectroscopy) and lab based IR and resonance Raman spectroscopy to study structure, electronic structure and dynamics of metalloproteins and model compounds;
- Normal Mode Analysis on iron-sulfur proteins and model compounds.

Research student: Inelastic and Nuclear Resonant Scattering Group, Advanced Photon Source, Argonne National Laboratory (Jan 2004- Sep 2007)

- Develop a semi-permanent setup of Nuclear Resonance Vibrational Spectroscopy for biological applications.

Teaching Experience

Teaching Assistant: Department of Applied Science, University of California, Davis (Sep 2002- Jun 2003)

Skills

- X-ray spectroscopic methods such as X-ray absorption spectroscopy, X-ray emission spectroscopy and X-ray fluorescence microscopy
- X-ray scattering methods such as nuclear resonant scattering (including both NFS and NRIXS), inelastic X-ray scattering and X-ray Raman scattering

Professional Services

Session chair, 20th Annual Argonne Symposium for Undergraduates in Science, Engineering and Mathematics, Nov 13, 2009, Argonne, IL

Session chair, 26th International Conference on High Pressure Science and Technology (AIRAPT26), Aug 18-23, 2017, Beijing, China

Paper reviewer for *Physical Review Letter*, *Scientific Report*, *Journal of Physics: Condensed Matter*, *Journal of Applied Physics*, *American Mineralogist*, *Geophysical Research Letter*, *Journal of Synchrotron Radiation*, *Physical Biology* and *High Pressure Research*

Honors and Awards

Student Travel Award, Division of Inorganic Chemistry, American Chemical Society (234th ACS National Meeting, Aug19-24, 2007)

Non-Resident Tuition Fellowship, University of California, Davis (2002- 2004)

People's Fellowship, Nanjing University (1996-1997)

Talks

14. “Nuclear Resonant Scattering under High Pressure at HPCAT”, NRS Data Analysis Workshop, Argonne, Nov 16-19, 2017.
13. “Nuclear Resonant and Inelastic X-ray Scattering under High Pressure at HPCAT”, 26th International Conference on High Pressure Science and Technology (AIRAPT26), Aug 18-23, 2017, Beijing, China (**invited**).
12. “X-ray Emission Spectroscopy under High Pressure at HPCAT”, 2017 Advanced Photon Source User Meeting, Argonne, May 8-10, 2017 (**invited**).

11. "Nuclear Resonant Scattering under High Pressure at HPCAT", 1st China Nuclear Resonant Scattering Workshop, Beijing, China, Jan 19-20, 2017 (**invited**).
10. "Nuclear Resonant Scattering under High Pressure at HPCAT", 7th North American Mössbauer Symposium, Austin, TX, Jan 12, 2013 (**invited**).
9. "Current Status and Recent Development of 16 IDD : High Pressure X-ray Spectroscopy Beamline at HPCAT", 11th International Conference on Synchrotron Radiation Instruments, Lyon, France, Jul 11, 2012.
8. "16ID-D: High Pressure X-ray Spectroscopy Beamline at HPCAT", 17th APS Topical Conference on Shock Compression of Condensed Matter , Chicago, Jun 29, 2011.
7. "Nuclear Resonance Vibrational Spectroscopy on Fe-S Proteins and Nitrogenase", Biophysyics Group Seminar, Northeastern University, Aug 23, 2007 (**Invited**).
6. "Nuclear Resonance Vibrational Spectroscopy on Nitrogenase", ACS 234th National Meeting, Aug 22nd, 2007, Boston, MA.
5. "Nuclear Resonance Vibrtional Spectroscopy and X-ray Emission Spectroscopy on Fe-S proteins and Model Compounds", High Pressure Group Seminar, Advanced Photon Source, Jun 25th, 2007, Argonne, IL.
4. "Nuclear Resonance Vibrational Spectroscopy on Fe-S Proteins and Nitrogenase", 15th International Conference on Nitrogen Fixation, Jan 26, 2007, Cape Town, South Africa. (**Invited**).
3. "Nuclear Resonance Vibrational Spectroscopy on Fe-S Enzymes and Model Compounds", 4th Nassau Mössbauer Conference, Jan 13-14, 2006, Garden City, NY. (**Invited**).
2. "Nuclear Resonance Vibrational Spectroscopy on Nitrogenase", Advanced Photon Source User Science Seminar, Oct 7, 2005, Argonne, IL. (**Invited**).
1. "Vibrational Mössbauer and Normal Mode Analysis of Rubredoxin", Gordon Research Conference on Graduate Research Seminar: Bioinorganic Chemistry, Jan 22-25, 2004, Ventura, CA. (**Invited**).

Publications

108. Brubaker, Z.E., R. L. Stillwell, P. Chow, **Y. Xiao**, C. Kenney-Benson, R. Ferry, Z. Jenei, R. J. Zieve, J. R. Jeffries. (2018), "Pressure dependence of Ce valence in CeRhIn₅", *J. Phys.: Condens. Matter*, 30, 035601
107. Han, F.; D. Wang, Y.G. Wang, N.N. Li, J.K. Bao, B. Li, A.S. Botana, **Y. Xiao**, P. Chow, D. Y. Chung, J.H. Chen, X. Wan, M. G Kanatzidis, W.G. Yang, H.K. Mao. (2018) , "Spin quenching assisted by a strongly anisotropic compression behavior in MnP", *New J. Phys.*, 20, 023012
106. Liu, J.; Q.Y. Hu, D.Y. Kim, Z.Q. Wu, W.Z. Wang, **Y. Xiao**, P. Chow, Y. Meng, V.B. Prakapenka, H.K. Mao, W. L. Mao. (2017), "Hydrogen-bearing iron peroxide and the origin of ultralow-velocity zones" *Nature*, 551, 494–497

105. Gainey, S. R., E.M. Hausrath, C.T. Adcock, O. Tschauner, J.A. Hurowitz, B.L. Ehlmann, **Y. Xiao**, C.L. Bartlett. (2017), “Clay mineral formation under oxidized conditions and implications for paleoenvironments and organic preservation on Mars”, *Nat. Commun.* 8, 1230
104. Wu, Y., F. Qin, X. Wu, H. Huang, C. A. McCammon, T. Yoshino, S. Zhai, **Y. Xiao**, V. B. Prakapenka. (2017), “Spin transition of ferric iron in the calcium-ferrite type aluminous phase”, *J. Geophys. Res. Solid Earth*, 122, 8: 5935–5944
103. Mao, Z., F. Wang, J.F. Lin, S.Y. Fu, J. Yang, X. Wu, T. Okuchi, N. Tomioka, V. B. Prakapenka, **Y. Xiao**, Paul Chow. (2017), “Equation of state and hyperfine parameters of high-spin bridgemanite in the Earth’s lower mantle by synchrotron X-ray diffraction and Mössbauer spectroscopy”, *American Mineralogist*, 102 (2) 357-368
102. Mauger, L., J.E. Herriman, O. Hellman, S.J. Tracy, M.S. Lucas, J.A. Munoz, **Y. Xiao**, J. Li, B. Fultz. (2017), “Phonons and elasticity of cementite through the Curie temperature”, *Phys. Rev. B* 95 (2), 024308
101. Pravica, M., Y.G. Wang, **Y.M. Xiao**, P. Chow. (2017), “High pressure resonant X-ray emission studies of WO and hydrogenated WO”, *JJAP Conf. Proc.* 6, 011102
100. Sun, F., G. Q. Zhao, C. A. Escanhoela, Jr., B. J. Chen, R. H. Kou, Y. G. Wang, **Y. M. Xiao**, P. Chow, H. K. Mao, D. Haskel, W. G. Yang, and C. Q. Jin. (2017), “Hole doping and pressure effects on the II-II-V-based diluted magnetic semiconductor $(\text{Ba}_{1-x}\text{K}_x)(\text{Zn}_{1-y}\text{Mn}_y)_2\text{As}_2$ ”, *Phys. Rev. B* 95, 094412
99. Yamaoka, H., Y. Yamamoto, J.F. Lin, J.J. Wu, X.C. Wang, C.Q. Jin, M. Yoshida, S. Onari, S. Ishida, Y. Tsuchiya, N. Takeshita, N. Hiraoka, H. Ishii, K.D. Tsuei, P. Chow, **Y. Xiao**, J. Mizuki. (2017), “Electronic structures and spin states of BaFe₂As₂ and SrFe₂As₂ probed by x-ray emission spectroscopy at Fe and As K-absorption edges”, *Phys. Rev. B* 96, 085129
98. Ying, J.J.; H.C. Lei, C. Petrovic, **Y. Xiao**, V. V. Struzhkin. (2017), “Interplay of magnetism and superconductivity in the compressed Fe-ladder compound BaFe₂Se₃”, *Phys. Rev. B* 95 (24), 241109-1-241109-5
97. Bi, W., J. Lim, G. Fabbris, J. Zhao, D. Haskel, E.E. Alp, M.Y. Hu, P. Chow, **Y. Xiao**, W. Xu, J.S. Schilling. (2016), “Magnetism of europium under extreme pressures”, *Phys. Rev. B* 93 (18), 184424
96. Butch, N.P., J. Paglione, P. Chow, **Y. Xiao**, C. A. Marianetti, C. H. Booth, J.R. Jeffries. (2016), “Pressure-Resistant Intermediate Valence in the Kondo Insulator SmB₆”, *Phys. Rev. Lett.* 116, 156401
95. Dorfman, S.M., S.E. Dutton, V. Potapkin, A. I. Chumakov, J.P. Rueff, P. Chow, **Y. Xiao**, R. J. Cava, T. S. Duffy, C. A. McCammon, P. Gillet. (2016), “Electronic transitions of iron in almandine-composition glass to 91 GPa”, *Am. Mineral.* 101, 7, 1659-1667
94. Kothapalli, K., A. E. Böhmer, W. T. Jayasekara, B. G. Ueland, P. Das, A. Sapkota, V. Taufour, **Y. Xiao**, E. Alp, S. L. Bud’ko, P. C. Canfield, A. Kreyssig, and A. I. Goldman. (2016), “Strong cooperative coupling of pressure-induced magnetic order and nematicity in FeSe”, *Nat. Commun.* 7:12728
93. Lin, J.F., Z. Mao, J. Yang, J. Liu, **Y. Xiao**, P. Chow, T. Okuchi. (2016), “High-Spin Fe²⁺ and Fe³⁺ in Single-Crystal Aluminous Bridgemanite in the Lower Mantle”, *Geophys. Res. Lett.*, 43, 6952-6959

92. Lipp, M. J.; J. R. Jeffries, H. Cynn, J.-H. Park Klepeis, W. J. Evans, D. R. Mortensen, G. T. Seidler, **Y. Xiao**, P. Chow. (2016), “Comparison of the high-pressure behavior of the cerium oxides Ce₂O₃ and CeO₂”, *Phys. Rev. B* 93, 064106
91. Reagan, M., A. Gleason, L. Daemen, **Y. Xiao**, W. Mao. (2016), “High-pressure behavior of the polymorphs of FeOOH”, *Am. Mineral.* 101 (6), 1483-1488
90. Shahar, A., E. A. Schable, R. Caracas, A. E. Gleason, M. M. Reagan, **Y. Xiao**, J. Shu, W. Mao. (2016), “Pressure-dependent Isotopic Composition of Iron Alloys”, *Science*, 352, 6285, pp. 580-582
89. Tanis, E.A., A. Simon, Y. Zhang, P. Chow, **Y. Xiao**, J. M. Hanchar, O. Tschauner, G. Shen. (2016), “Rutile solubility in NaF-NaCl-KCl-bearing aqueous fluids at 0.5-2.79 GPa and 250-650°C”, *Geochim. Cosmochim. Acta* 177, 170-181
88. Tracy, S. J., L. Mauger, H. L. Smith, H. J. Tan, J. E. Herriman, **Y.M. Xiao**, B. Fultz. (2016), “Polaron Mobility and Disordering of the Sodium Sublattice in Triphylite-NaxFePO₄”, *Chem. Mater.*, 28, 3051-3059
87. Wang, Y., L. Bai, T. Wen, L. Yang, H. Gou, Y. Xiao, P. Chow, M. Pravica, W. Yang, Y. Zhao. (2016), “Giant Pressure-Driven Lattice Collapse Coupled with Intermetallic Bonding and Spin-State Transition in Manganese Chalcogenides”, *Angew. Chem. Int. Ed.*, 55, 10350
86. Wang, Y.G., Z.Y. Zhou, T. Wen, Y.N. Zhou, N.N. Li, F. Han, **Y. Xiao**, P. Chow, J. Sun, M. Pravica, A. L. Cornelius, W.G. Yang, Y.S. Zhao. (2016), “Pressure-Driven Cooperative Spin-Crossover, Large Volume Collapse and Semiconductor-to-Metal Transition in Manga-nese(II) Honeycomb Lattices”, *J. Am. Chem. Soc.*, 138 (48), 15751-15757
85. Wu, X., Y. Wu, J.-F. Lin, J. Liu, Z. Mao, X. Guo, T. Yoshino, C. McCammon, V. B. Prakapenka, **Y. Xiao**. (2016), “Two-stage spin transition of iron in FeAl-bearing phase D at lower mantle”, *J. Geophys. Res. Solid Earth*, 121, 6411–6420
84. Wu, Y., X. Wu, J.F. Lin, C.A. McCammon, **Y.M. Xiao**, P. Chow, V. B. Prakapenka, T. Yoshino, S.M. Zhai, S. Qin. (2016), “Spin transition of ferric iron in the NAL phase: Implications for the seismic heterogeneities of subducted slabs in the lower mantle”, *Earth and Planetary Science Letters*, 434, 91–100
83. **Xiao, Y.M.**, P. Chow, G.Y. Shen. (2016), “High pressure X-ray emission spectroscopy at the advanced photon source”, *High Press. Res.*, Vol. 36 , 3, 315-331
82. Yang, F.C., J. A. Muñoz, O. Hellman, L. Mauger, M. S. Lucas, S. J. Tracy, M. B. Stone, D. L. Abernathy, **Y.M. Xiao**, B. Fultz. (2016), “Thermally Driven Electronic Topological Transition in FeTi”, *Phys. Rev. Lett.* 117, 076402
81. Chow, P., **Y. M. Xiao**, E. Rod, L. G. Bai, G. Y. Shen, S. Sinogeikin, N. Gao, Y. Ding and H.-K. Mao. (2015), “Focusing polycapillary to reduce parasitic scattering for inelastic x-ray measurements at high pressure”, *Rev. Sci. Instrum.* 86, 072203
80. Dorfman, S.M., J. Badro, J.P. Rueff, P. Chow, **Y. Xiao**, P. Gillet. (2015), “Composition dependence of spin transition in (Mg,Fe)SiO₃ bridgemanite”, *American Mineralogist*, 100, 2246-2253
79. Kumar, R.S., A. Svane, G. Vaitheswaran, V. Kanchana, D. Antonio, A. L. Cornelius, E. D. Bauer, **Y. Xiao**, and P. Chow. (2015), “Effect of Pressure on Valence and Structural Properties of YbFe₂Ge₂ Heavy Fermion Compound—A Combined Inelastic X-ray Spectroscopy, X-ray Diffraction, and Theoretical Investigation”, *Inorg. Chem.*, 2015, 54 (21), pp 10250–10255

78. Tanis, E. A., A. Simon, O. Tschauner, P. Chow, **Y.M. Xiao**, P. Burnley, C. J. Cline II, J. M. Hanchar, T. Pettke, G.Y. Shen, Y.S. Zhao. (2015), “The mobility of Nb in rutile-saturated NaCl- and NaF-bearing aqueous fluids from 1–6.5 GPa and 300–800 °C”, *Am. Mineral.*, 100 (7) 1600–1609
77. **Xiao, Y.M.**, P. Chow, G. Boman, L. G. Bai, E. Rod, A. Bommannavar C. Kenney-Benson, S. Sinogeikin, and G. Y. Shen. (2015), “New developments in high pressure x-ray spectroscopy beamline at High Pressure Collaborative Access Team”, *Rev. Sci. Instrum.* 86, 072206
76. Chen, B.; Z.Y. Li, D.Z. Zhang, J.C. Liu, M.Y. Hu, J.Y. Zhao, W.L. Bi, E. E. Alp, **Y.M. Xiao**, P. Chow, and J. Li. (2014), “Hidden carbon in Earth’s inner core revealed by shear softening in dense Fe₇C₃”, *Proc. Natl. Acad. Sci.*, 111, 50, 17755–17758
75. Jeffries, J.R., N.P. Butch, M.J. Lipp, J.A. Bradley, K. Kirshenbaum, S.R. Saha, J. Paglione, C. Kenney-Benson, **Y. Xiao**, P. Chow, and W.J. Evans. (2014), “Persistent Fe moments in the normal-state collapsed-tetragonal phase of the pressure-induced superconductor Ca_{0.67}Sr_{0.33}Fe₂As₂”, *Phys. Rev. B* 90, 144506
74. Jeffries, J.R., L.S.I. Veiga, G. Fabbris, D. Haskel, P. Huang, N.P. Butch, S.K. McCall, K. Holliday, Z. Jenei, **Y. Xiao**, and P. Chow. (2014), “Robust ferromagnetism in the compressed permanent magnet Sm₂Co₁₇”, *Phys. Rev. B* 90 104408
73. Kothapalli, K., E. Kim, T. Kolodziej, P. F. Weck, E. E. Alp, **Y. Xiao**, P. Chow, C. Kenney-Benson, Y. Meng, S. Tkachev, A. Kozlowski, B. Lavina, and Y. Zhao (2014), “Nuclear forward scattering and first-principles studies of the iron oxide phase Fe₄O₅”, *Phys. Rev. B* 90 (2), 024430
72. Kumar, R.S.; J. J. Hamlin, M. B. Maple, Y. Zhang, C.F. Chen, J. Baker, A. L. Cornelius, Y.S. Zhao, **Y.M. Xiao**, S. Sinogeikin and P. Chow. (2014), “Pressure-induced superconductivity in LaFeAsO: The role of anionic height and magnetic ordering”, *Appl. Phys. Lett.* 105, 251902
71. Mao, Z.; J.F. Lin, J. Yang, H. Bian, J. Liu, H. C. Watson, S. Huang, J. Chen, V.B. Prakapenka, **Y. Xiao**, and P. Chow. (2014), “(Fe, Al)-bearing post-perovskite in the Earth’s lower mantle”, *Earth Planet. Sci. Lett.* 403, 157–165
70. Mauger, L.; M. S. Lucas, J. A. Muñoz, S. J. Tracy, M. Kresch, **Y.M. Xiao**, P. Chow, and B. Fultz. (2014), “Nonharmonic phonons in α-iron at high temperatures”, *Phys. Rev. B* 90, 064303
69. Tracy, S.J., L. Mauger, H. J. Tan, J. A. Muñoz, **Y.M. Xiao**, and B. Fultz. (2014), “Polaron-ion correlations in Li_xFePO₄ studied by x-ray nuclear resonant forward scattering at elevated pressure and temperature”, *Phys. Rev. B* 90, 094303
68. Yan, H.P., C. Park, G. Ahn, S.B. Hong, D.T. Keane, C. Kenney-Benson, P. Chow, **Y. Xiao**, and G. Shen. (2014), “Termination and hydration of forsteritic olivine (010) surface”, *Geochim. Cosmochim. Acta* 145, 268–280
67. Kumar, R. S., Y. Zhang, A. Thamizhavel, A. Svane, G. Vaitheeswaran, V. Kanchana, **Y. Xiao**, P. Chow, C. Chen, and Y. Zhao. (2014), “Pressure induced valence change of Eu in EuFe₂As₂ at low temperature and high pressures probed by resonant inelastic x-ray scattering”, *Appl. Phys. Lett.* 104 (4), 042601
66. Mao, Zhu, J-F. Lin, J. Yang, J. Wu, H. C. Watson, **Y. Xiao**, P. Chow, and J. Zhao. (2014), “Spin and valence states of iron in Al-bearing silicate glass at high

- pressures studied by synchrotron Mössbauer and X-ray emission spectroscopy”, *Amer. Min.*, Vol. 99, pages 415–423
65. Wu, J. J., J.F. Lin, X.C. Wang, Q.Q. Liu, J.L. Zhu, **Y.M. Xiao**, P. Chow, and C.Q. Jin. (2014), “Magnetic and structural transitions of SrFe₂As₂ at high pressure and low temperature”, *Sci. Rep.* 4, 3685-1-3685-4
64. Chang, Y-Y., S. D. Jacobsen, J-F. Lin, C. R. Bina, S-M. Thomas, J. Wu, G. Shen, **Y. Xiao**, P. Chow, D. J. Frost, C. A. McCammon, and P. Dera. (2013), “Spin transition of Fe³⁺ in Al-bearing phase D: An alternative explanation for small-scale seismic scatterers in the mid-lower mantle”, *Earth Planet. Sci. Lett.* 382, 1-9
63. Delaire, O., I. I. Al-Qasir, J. Ma, A. M. dos Santos, B. C. Sales, L. Mauger, M. B. Stone, D. L. Abernathy, **Y. Xiao**, and M. Somayazulu. (2013), “Effects of temperature and pressure on phonons in FeSi_{1-x}Al_x”, *Phys. Rev. B*, 87, 184304
62. Gavriliuk, A. G., I. S. Lyubutin, S. S. Starchikov, A. A. Mironovich, S. G. Ovchinnikov, I. A. Trojan, **Y. Xiao**, P. Chow, S. V. Sinogeikin, and V. V. Struzhkin. (2013), “The magnetic P-T phase diagram of langasite Ba₃TaFe₃Si₂O₁₄ at high hydrostatic pressures up to 38 GPa”, *Appl. Phys. Lett.* 103, 16402
61. Guo, Y., Y. Yoda, X. Zhang, **Y. Xiao**, and S. P. Cramer. (2013), “Synchrotron Radiation-Based Nuclear Resonant Scattering: Applications To Bioinorganic Chemistry”, in *Mössbauer Spectroscopy: Applications in Chemistry, Biology, and Nanotechnology*, Chapter 12 (eds V. K. Sharma, G. Klingelhöfer and T. Nishida), John Wiley & Sons, Inc., Hoboken, New Jersey.
60. Li, K., H. Zheng, I. N. Ivanov, M. Guthrie, **Y. Xiao**, W. Yang, C. A. Tulk, Y. Zhao, and H-k. Mao. (2013), “K₃Fe(CN)₆: Pressure-Induced Polymerization and Enhanced Conductivity”, *J. Phys. Chem. C* 117 (46), 24174-24180
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58. Mortensen, D. R., G.T. Seidler, J.A. Bradley, M.J. Lipp, W.J. Evans, P. Chow, **Y.-M. Xiao**, G. Boman, and M.E. Bowden. (2013), “A versatile medium-resolution x-ray emission spectrometer for diamond anvil cell applications”, *Rev. Sci. Instrum.* 84 (8), 083908-1-083908-4
57. Pravica, M., N. Bhattacharya, Y. Liu, J. Robinson, W-S. Au, T. Mizoguchi, Z. Liu, and **Y. Xiao**. (2013), “High pressure infrared and X-ray Raman studies of aluminum nitrid”, *Phys. Status Solidi b.* 250 (4), 726-731
56. Smith, Hillary L., B.C. Hornbuckle, L. Mauger, B. Fu, S.J. Tracy, G.B. Thompson, M.S. Lucas, **Y. Xiao**, M.Y. Hu, J. Zhao, E. Ercan Alp, and B. Fultz. (2013), “Changes in vibrational entropy during the early stages of chemical unmixing in fcc Cu-6% Fe”, *Acta Mater.* 61 (19), 7466-7472 .
55. Wu, J.J., J-F. Lin, X. C. Wang, Q.Q.Liu, J. L. Zhu, **Y. M. Xiao**, P. Chow, and C. Jin. (2013), “Pressure-decoupled magnetic and structural transitions of the parent compound of iron-based_122 superconductors BaFe₂As₂”, *Proc. Natl. Acad. Sci.*, 110, 43, 17263-17266
54. Kumar, R. S., A. Svane, G. Vaitheswaran, Y. Zhang, V. Kanchana, M. Hofmann, S.J. Campbell, **Y. Xiao**, P. Chow, C. Chen, Y. Zhao, and A. L. Cornelius. (2013) “Pressure-Induced Valence and Structural Changes in YbMn₂Ge₂—Inelastic X-ray Spectroscopy and Theoretical Investigations”, *Inorg. Chem.* 52 (2), 832-839

53. Lucas, M.S., L. Mauger, J.A. Muñoz, I. Halevy, J. Horwath, S.L. Semiatin, S.O. Leontsev, M.B. Stone, D.L. Abernathy, **Y. Xiao**, P. Chow, and B. Fultz. (2013) “Phonon densities of states of face-centered-cubic Ni-Fe alloys”, *J. Appl. Phys.* 113 (17), 17A308
52. Lyubutin, I., V. V. Struzhkin, A. A. Mironovich, A. G. Gavriliuk, P. G. Naumov, J-F. Lin, S.G. Ovchinnikov, S. Sinogeikin, P. Chow, **Y. Xiao**, and R. Hemley. (2013) “Quantum critical point and spin fluctuations in lower-mantle ferropericlase”, *Proc. Natl. Acad. Sci.*, 110, 7142-7147
51. Munoz, J.A., M.S. Lucas, L. Mauger, I. Halevy, J. Horwath, S.L. Semiatin, **Y. Xiao**, P. Chow, M.B. Stone, D.L. Abernathy, and B. Fultz. (2013). “Electronic structure and vibrational entropies of fcc Au-Fe alloys”, *Phys. Rev. B* 87 (1), 014301-1-014301-7
50. Gu, C., Catalli, K., Grocholski, B., Gao, L., Alp, E., Chow, P., **Xiao, Y.**, Cynn, H., Evans, W. J., and Shim, S-H. (2012). “Electronic structure of iron in magnesium silicate glasses at high pressure”, *Geophys. Res. Lett.* 39 (24), L24304
49. Lipp, M.J., A.P. Sorini, J. Bradley, B. Maddox, K.T. Moore, H. Cynn, T.P. Devereaux, **Y. Xiao**, P. Chow and W.J. Evans. (2012). “X-ray Emission Spectroscopy of Cerium Across the [gamma-alpha] Volume Collapse Transition”, *Phys. Rev. Lett.* 109, 195705-1.
48. Tanis, E.A., A. Simon, O. Tschauner, P. Chow, **Y. Xiao**, G. Shen, J. M. Hanchar, and M. Frank. (2012). “Solubility of xenotime in a 2 M HCl aqueous fluid from 1.2 to 2.6 GPa and 300 to 500 °C.”, *Am. Mineral.*, 97, 1708-1713.
47. Bradley, J.A., K.T. Moore, M.J. Lipp, B.A. Mattern, J.I. Pacold, G.T. Seidler, P. Chow, E.Rod, **Y.Xiao**, and W.J. Evans. (2012). “4f electron delocalization and volume collapse in praseodymium metal. *Phys. Rev. B*, 85, 100102.
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